Energy crisis, not climate: basic concepts

Dr. Armando Páez

Free presentation on Internet

October 2022, updated September 2023

Basic climate crisis assumption

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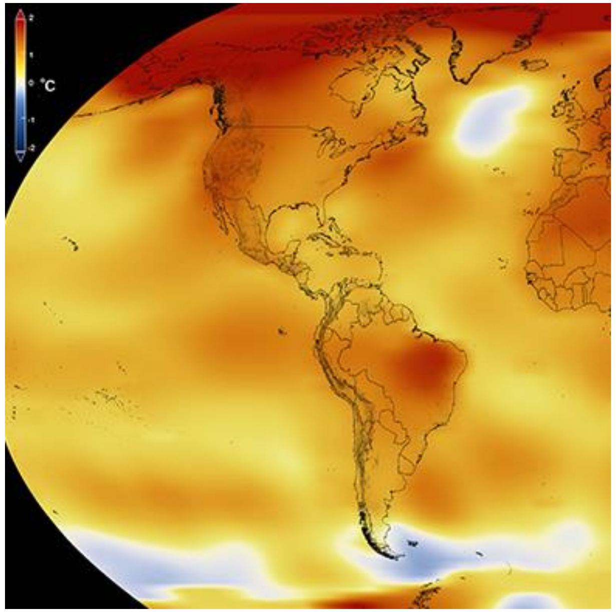
CO_2 increase

Basic climate crisis assumption

CO_2 increase → Temperature increase



Basic climate crisis assumption

CO_2 increase → Temperature increase → **CATASTROPHE.**

Scientific and political construction of anthropogenic climate change

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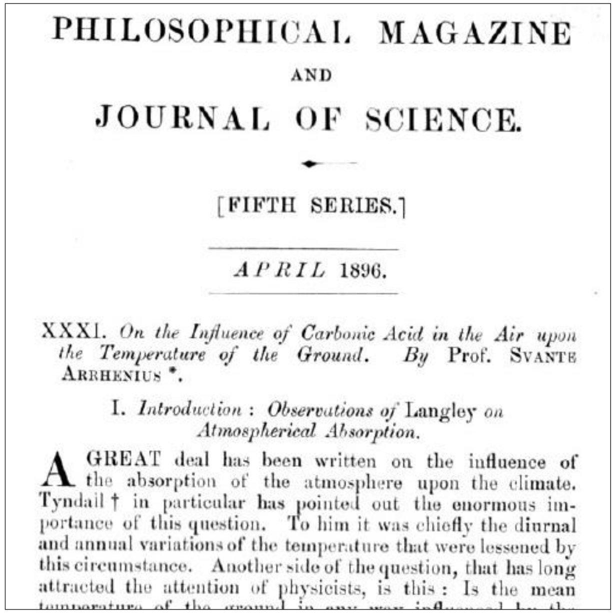
- S. Arrhenius, T. Chamberlin, late 19th century.



PHILOSOPHICAL MAGAZINE

AND

JOURNAL OF SCIENCE.

[FIFTH SERIES.]

APRIL 1896.

XXXI. *On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground.* *By* Prof. SVANTE ARRHENIUS *.

I. *Introduction* : *Observations of* Langley *on Atmospherical Absorption.*

A GREAT deal has been written on the influence of the absorption of the atmosphere upon the climate. Tyndall † in particular has pointed out the enormous importance of this question. To him it was chiefly the diurnal and annual variations of the temperature that were lessened by this circumstance. Another side of the question, that has long attracted the attention of physicists, is this: Is the mean

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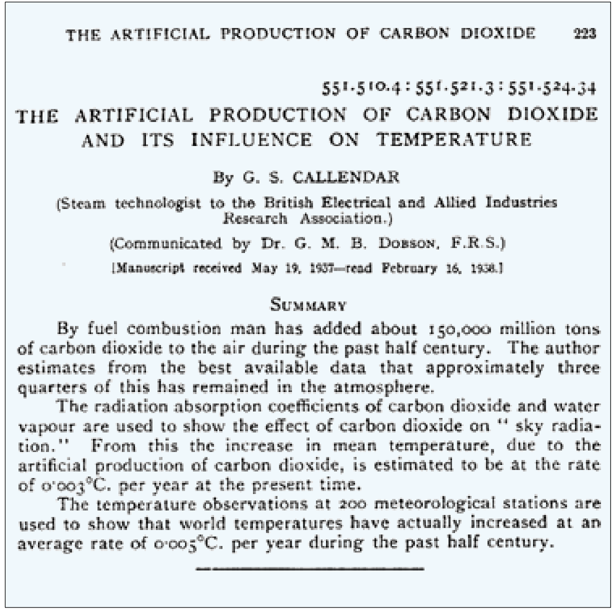

THE ARTIFICIAL PRODUCTION OF CARBON DIOXIDE 223

551.510.4 : 551.521.3 : 551.524.34

THE ARTIFICIAL PRODUCTION OF CARBON DIOXIDE AND ITS INFLUENCE ON TEMPERATURE

By G. S. CALLENDAR

(Steam technologist to the British Electrical and Allied Industries Research Association.)

(Communicated by Dr. G. M. B. DOBSON, F.R.S.)

[Manuscript received May 19, 1937—read February 16, 1938.]

SUMMARY

By fuel combustion man has added about 150,000 million tons of carbon dioxide to the air during the past half century. The author estimates from the best available data that approximately three quarters of this has remained in the atmosphere.

The radiation absorption coefficients of carbon dioxide and water vapour are used to show the effect of carbon dioxide on " sky radiation." From this the increase in mean temperature, due to the artificial production of carbon dioxide, is estimated to be at the rate of 0·003°C. per year at the present time.

The temperature observations at 200 meteorological stations are used to show that world temperatures have actually increased at an average rate of 0·005°C. per year during the past half century.

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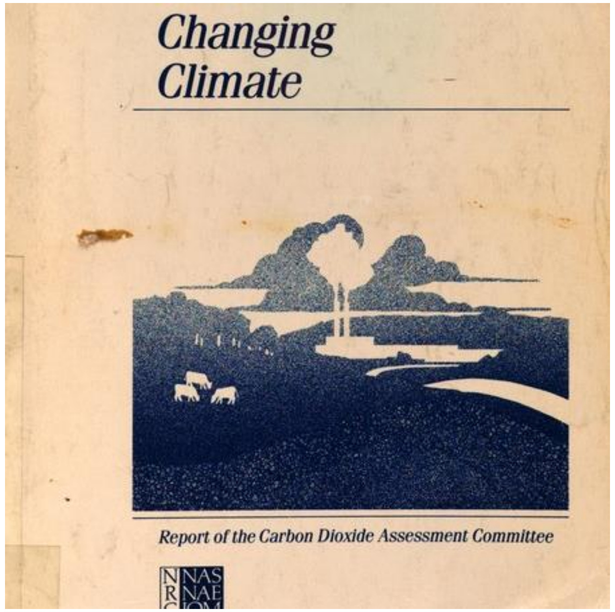

Changing Climate

Report of the Carbon Dioxide Assessment Committee

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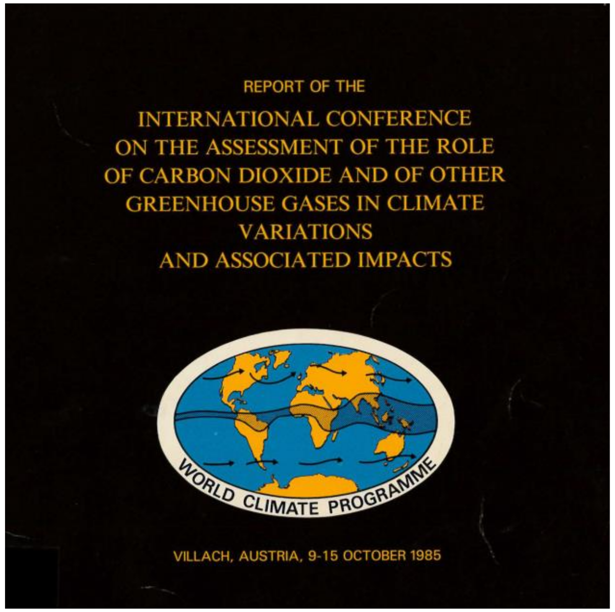

REPORT OF THE
INTERNATIONAL CONFERENCE
ON THE ASSESSMENT OF THE ROLE
OF CARBON DIOXIDE AND OF OTHER
GREENHOUSE GASES IN CLIMATE
VARIATIONS
AND ASSOCIATED IMPACTS

WORLD CLIMATE PROGRAMME

VILLACH, AUSTRIA, 9-15 OCTOBER 1985

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- Our Common Future (WCED), 1987.

Scientific and political construction of anthropogenic climate change

”The serious probability of climate change generated by the ‘greenhouse effect’ of gases emitted to the atmosphere, the most important of which is carbon dioxide (CO_2) produced from the combustion of fossil fuels.”
— WCED, Our Common Future (UN, 1987, p. 174)

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ipcc
INTERGOVERNMENTAL PANEL ON
climate change

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- IPCC, 1988.
- UNFCCC, Earth Summit, 1992.
- Conference of the Parties, 1995…

COP28
UAE

Media construction of the climate crisis

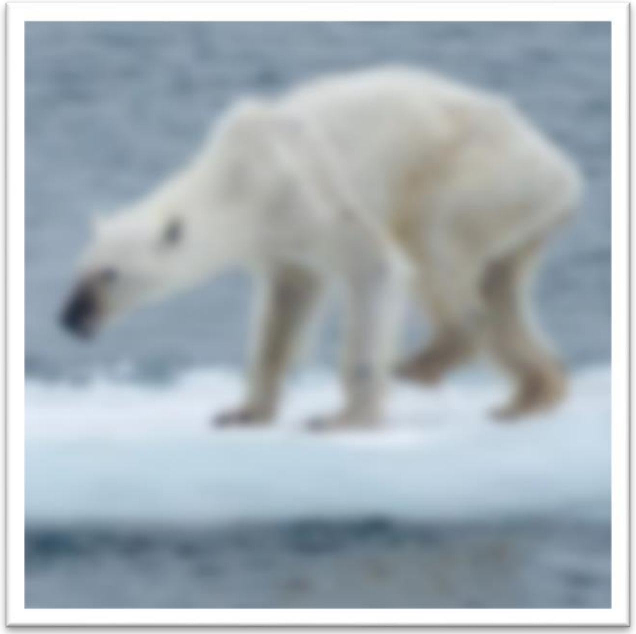
Media construction of the climate crisis

- Apocalypse.

Media construction of the climate crisis

- Apocalypse.

  Inaccuracies.
  It does not explain.
  Ignores dissenting scientific voices.



Criticism of the notion of climate crisis

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  i) absorption spectrum of CO_2, water vapor,

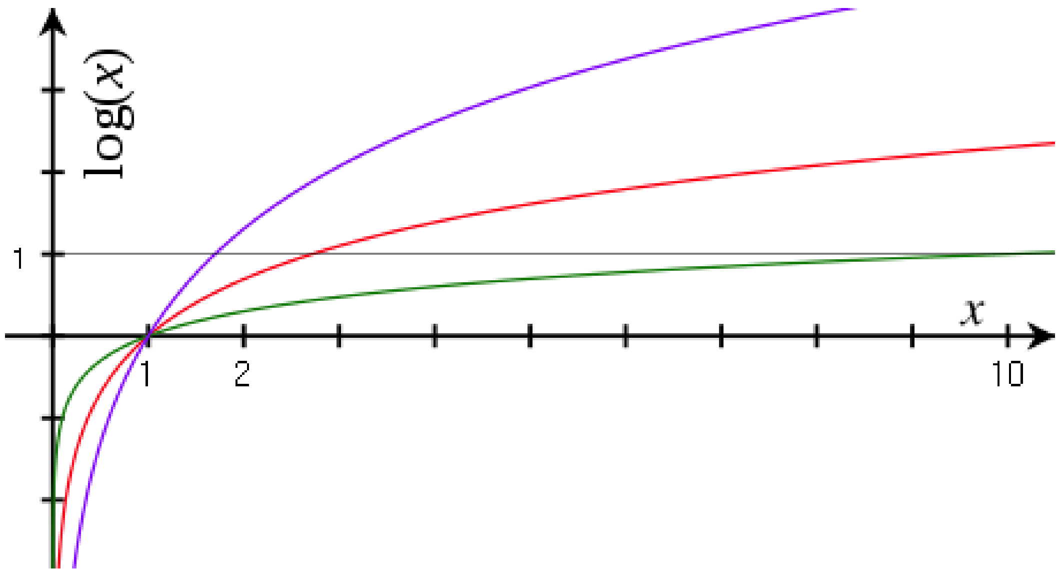
Criticism of the notion of climate crisis

- There is no scientific basis:
  i) absorption spectrum of CO_2, water vapor,
  ii) negative feedback factors.

Absorption spectrum of CO_2

“The radiative forcing of a GHG may vary over time, as its concentration changes. Since the absorption of carbon dioxide increases logarithmically with its concentration, the initial concentration increments implied a greater radiative forcing than those of the present. Likewise, future emissions will have less and less radiative forcing…”

[Logarithm]



Absorption spectrum of CO_2

"This characteristic has a political implication in the assignment of responsibilities regarding Climate Change, since developed countries were by far the largest emitters of carbon dioxide in the early days of the industrial period and continue to be so (although to a lesser extent in the present)…"

Absorption spectrum of CO_2

"On the other hand, it is estimated that in the future the emissions of the developing countries will grow faster than those of the developed ones; but, for what has been explained, their impact will be less."

— V. Barros, El cambio climático global [Global climate change] (Libros del Zorzal, 2005, pp. 44–45)

Absorption spectrum of CO_2

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→ Co-Chair of IPCC Working Group II (2013-2014).

Absorption spectrum of water vapor

- Main “greenhouse” gas (36-72 %).

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→ CO_2 (9-26 %) [atmosphere 0.04 %].

Absorption spectrum of water vapor

- Main “greenhouse” gas (36-72 %).

“The effect saturates; beyond a certain amount of vapor the longwave atmospheric opacity no longer increases.”
— R. Garduño, El veleidoso clima [The fickle climate] (FCE, [1994] 2003, p. 68)

Negative feedback

- Low clouds increase the albedo (reflectivity).

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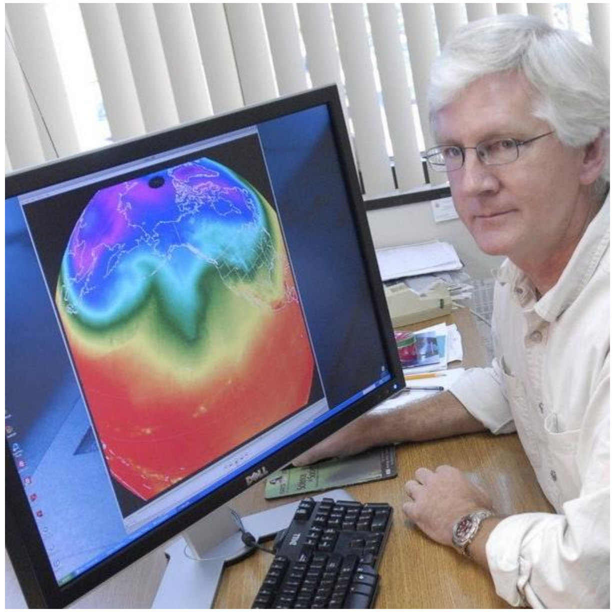
- R. Spencer (2010): understanding is lacking.



Negative feedback

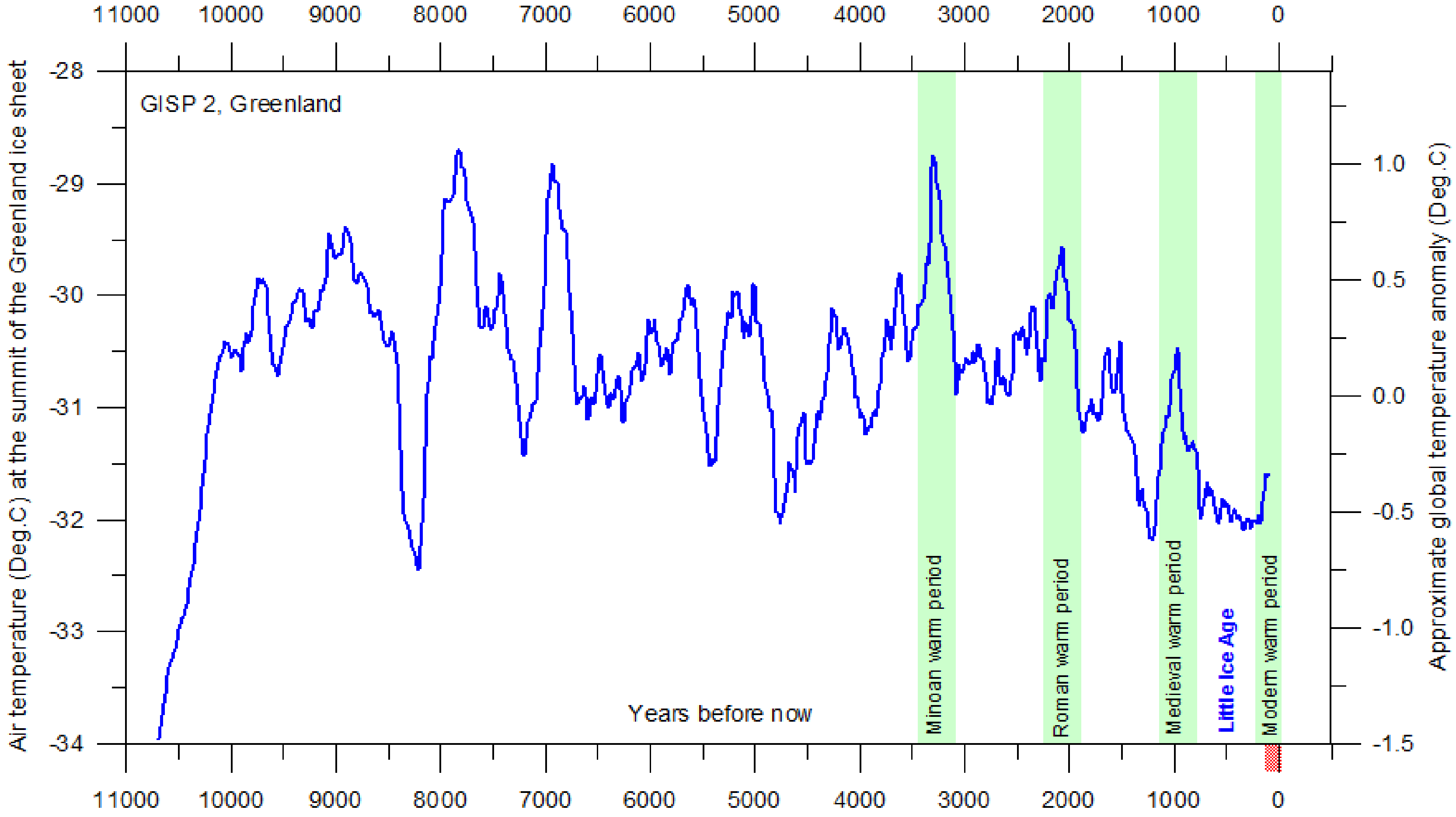
- Low clouds increase the albedo (reflectivity).
- J. Smagorinsky (1977, 1981): lack of theoretical and empirical development.
- R. Spencer (2010): understanding is lacking.

→ Smagorinsky, before Villach (1985)…

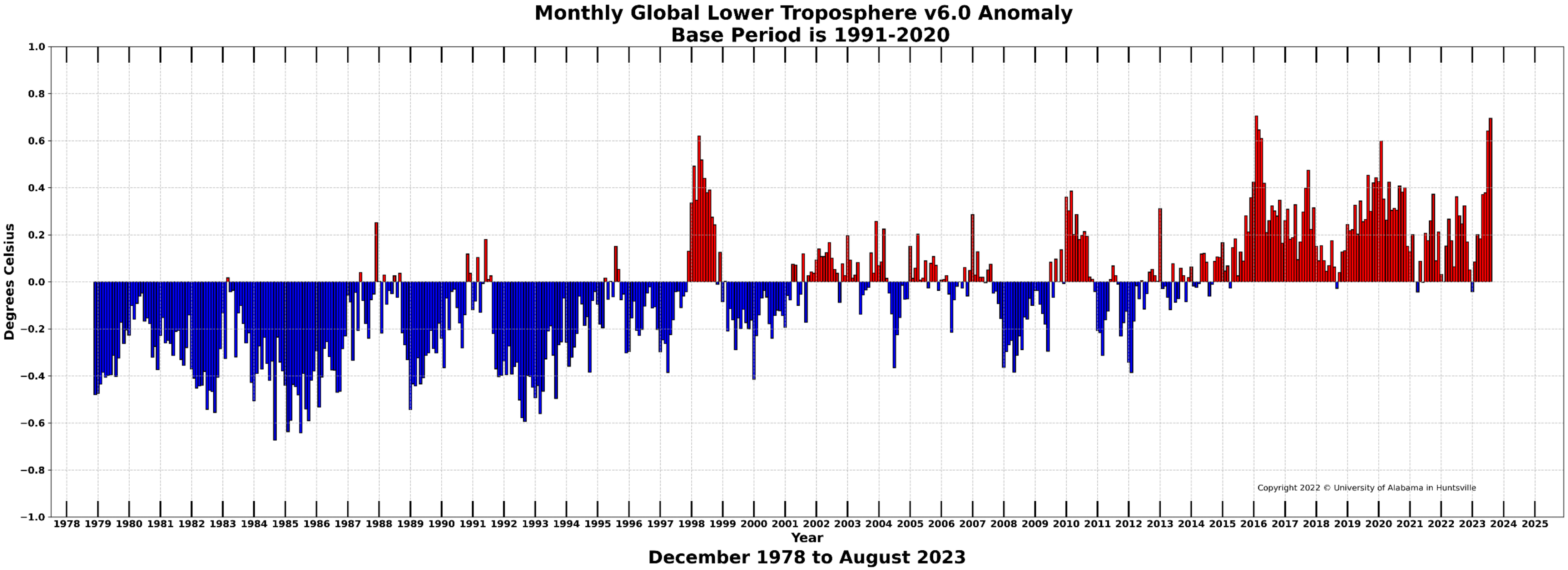
Negative feedback

“When clouds are present, the CO_2 is less effective in changing the net amount of radiation from the surface.”
— G. Plass, Tellus, 8 (1956, p. 142)

Global mean temperature (Source: Ole Humlum [USGS])



Global mean temperature (Source: University of Alabama in Hunstville)



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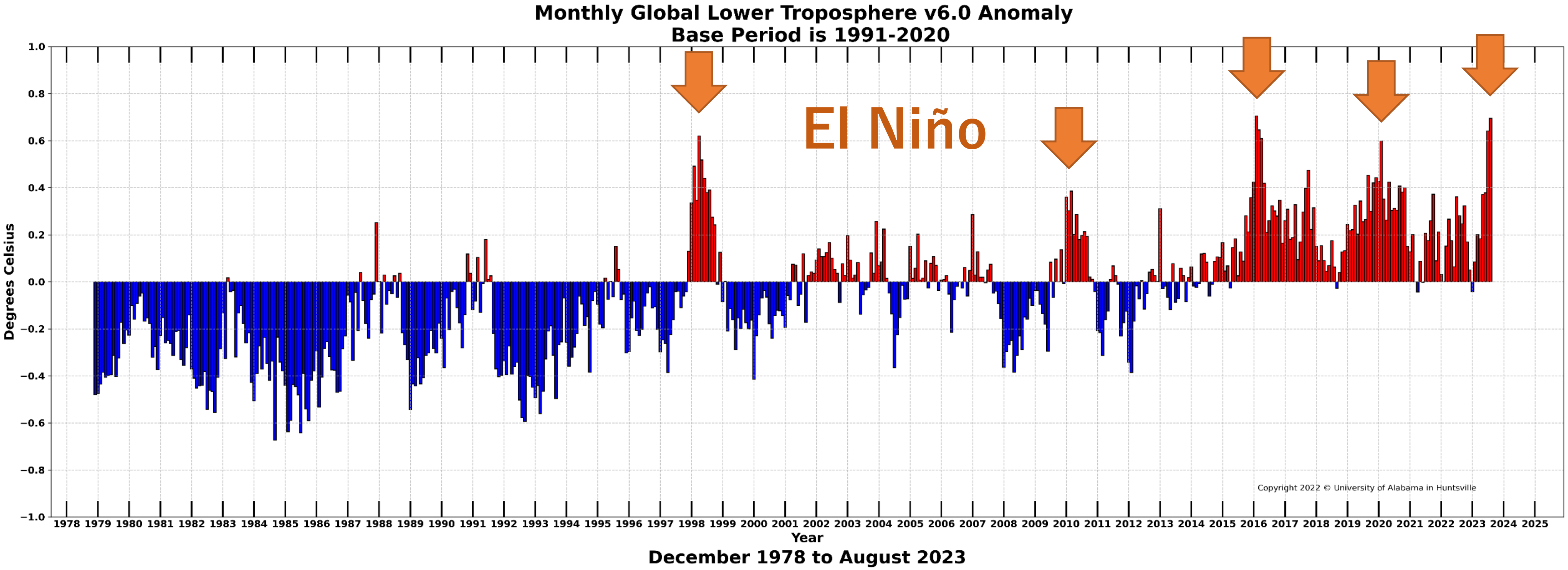

Monthly Global Lower Troposphere v6.0 Anomaly
Base Period is 1991-2020

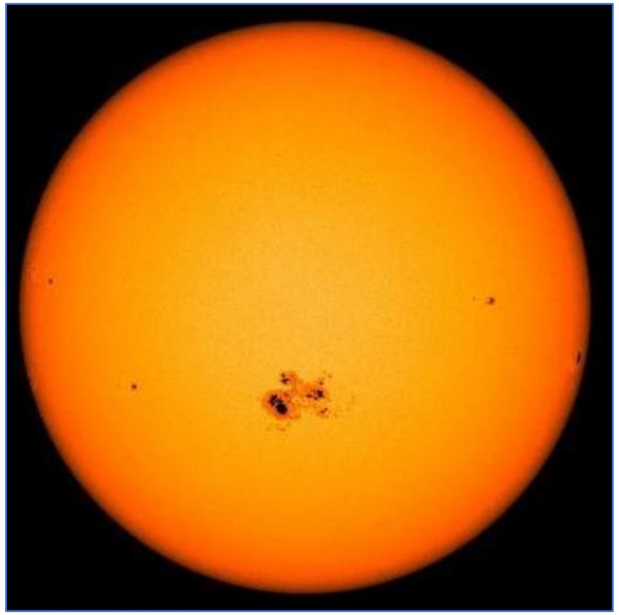
December 1978 to August 2023

Natural variability

- Orbital changes and tilt of the Earth.
- Oceanic oscillations (El Niño, etc.).
- Cloud cover.
- Volcanic eruptions.
- Solar activity…

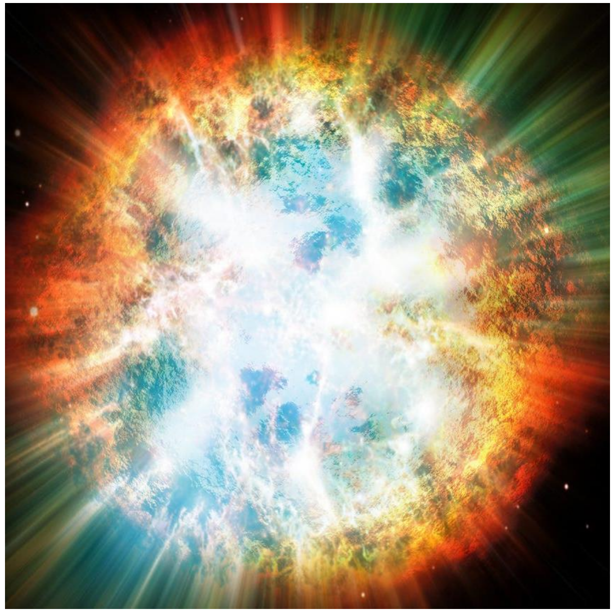
Global cooling?

- Less solar activity (H. Abdussamatov, V. Velasco).



Global cooling?

- Less solar activity (H. Abdussamatov, V. Velasco).
- Less solar activity | cosmic rays relation
  → low clouds (H. Svensmark).



Global cooling?

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- Less solar activity | cosmic rays relation
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- Little Ice Age, 14th-19th centuries.

Climatic changes

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- The climate always changes

Climatic changes

- The climate always changes → uncertainties.

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- Currently, optimal climate.

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Climatic changes

- The climate always changes → uncertainties.
- Currently, optimal climate.
- There will always be extreme weather events…

  → Risk planning.
- Impact of deforestation.

CO_2 is not the problem…

CO_2 is not the problem…
plant nutrient!

Climate crisis?

Climate crisis?

→ It is not a problem posed by climatology.

Antonio Gil Olcina
Jorge Olcina Cantos
Climatología
básica

Climate crisis?

→ It is not a problem posed by climatology.

→ Invention of radical environmentalism.

Climate crisis?

→ It is not a problem posed by climatology.

→ Invention of radical environmentalism.

→ Green economy interests ($).

Energy crisis.

Energy transition

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- Energy, problem in itself, not environmental subtopic (1987).

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- Overcome inaccuracies and errors, pose the challenges correctly (criticism).

Energy transition

- Energy, problem in itself, not environmental subtopic (1987).
- Overcome inaccuracies and errors, pose the challenges correctly (criticism).
  → There are no “clean” energies, nor are they strictly renewable.

Energetics: concepts

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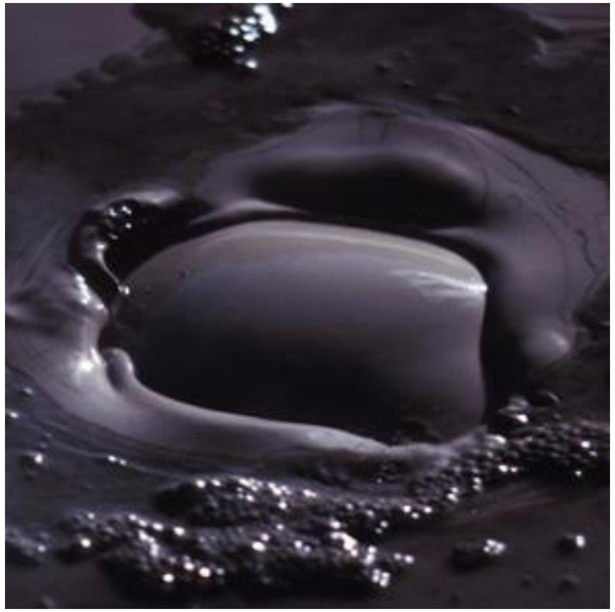
- Specific energy: amount of energy contained per unit mass (V. Smil, D. Reynolds).



Energetics: concepts

- Energy return on investment: extracted fuel / energy required directly and indirectly to locate, extract and refine the fuel. Energy obtained / invested energy (C. Hall).

Energetics: concepts

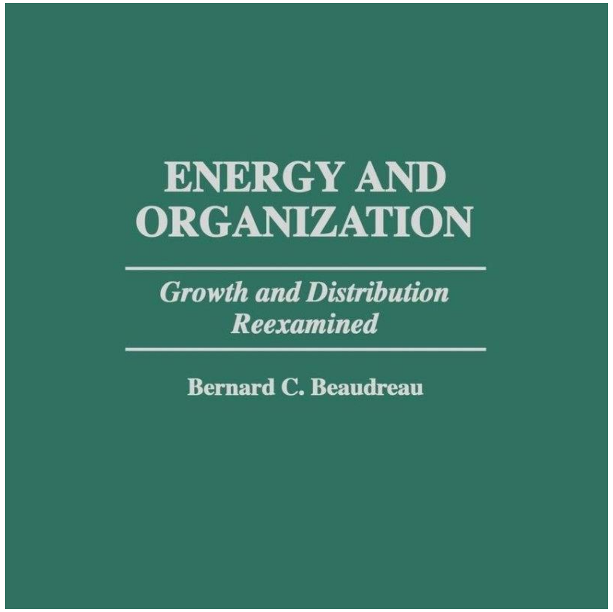
- Emergy: available energy that has to be used directly and indirectly to make a product or service (H. Odum).

Energetics: concepts

- Renewable energy constraints: intermittency, technology, ecological impact, location, land (V. Smil, D. Reynolds, The Nature Conservancy).

Energetics: concepts

- Development requires cheap energy (B. Beaudreau).



ENERGY AND ORGANIZATION

Growth and Distribution Reexamined

Bernard C. Beaudreau

Energetics: concepts

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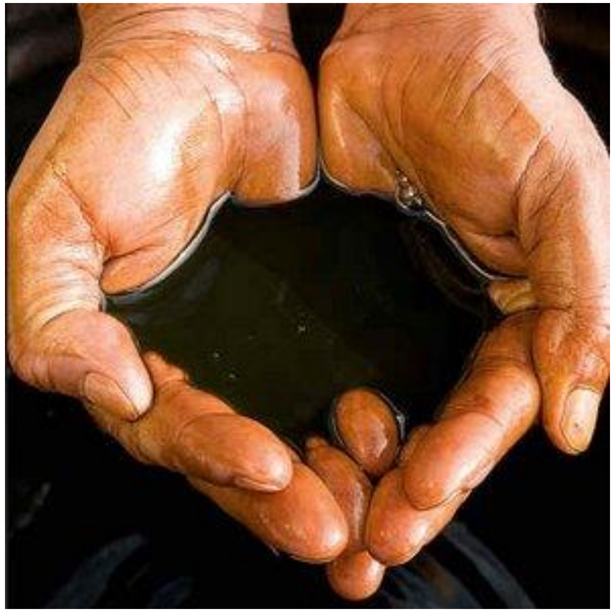

Energetics: concepts

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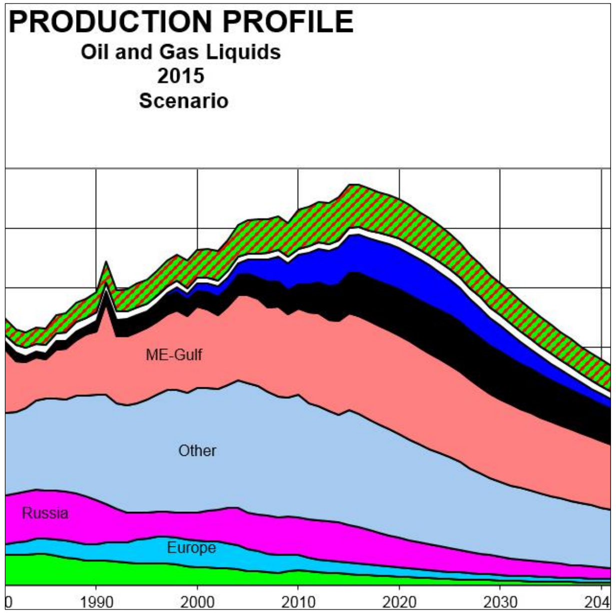

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- Higher cost.

Energetics: concepts

- Development requires cheap energy (B. Beaudreau).
- Oil is the best energy resource.
- Global production peak 2020-2030, before 2050 (case: Mexico, peak 2004).
- Higher cost.
- Diminishing returns (J. Tainter).

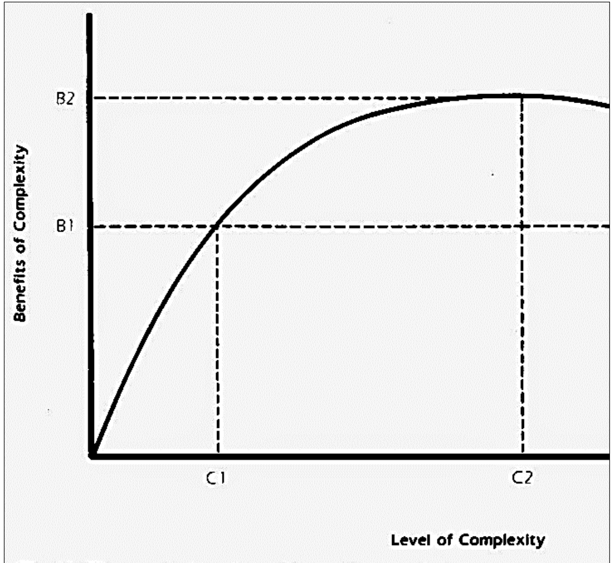
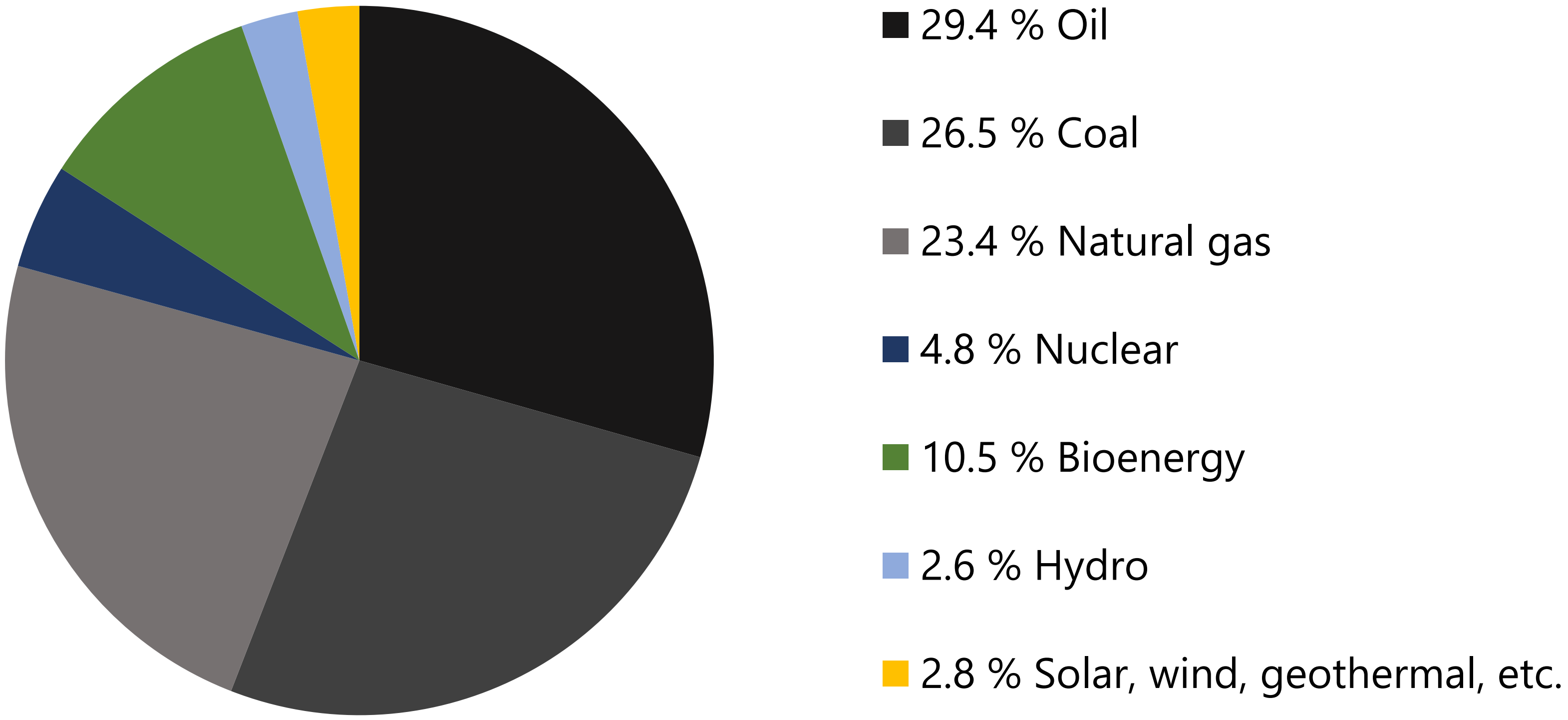
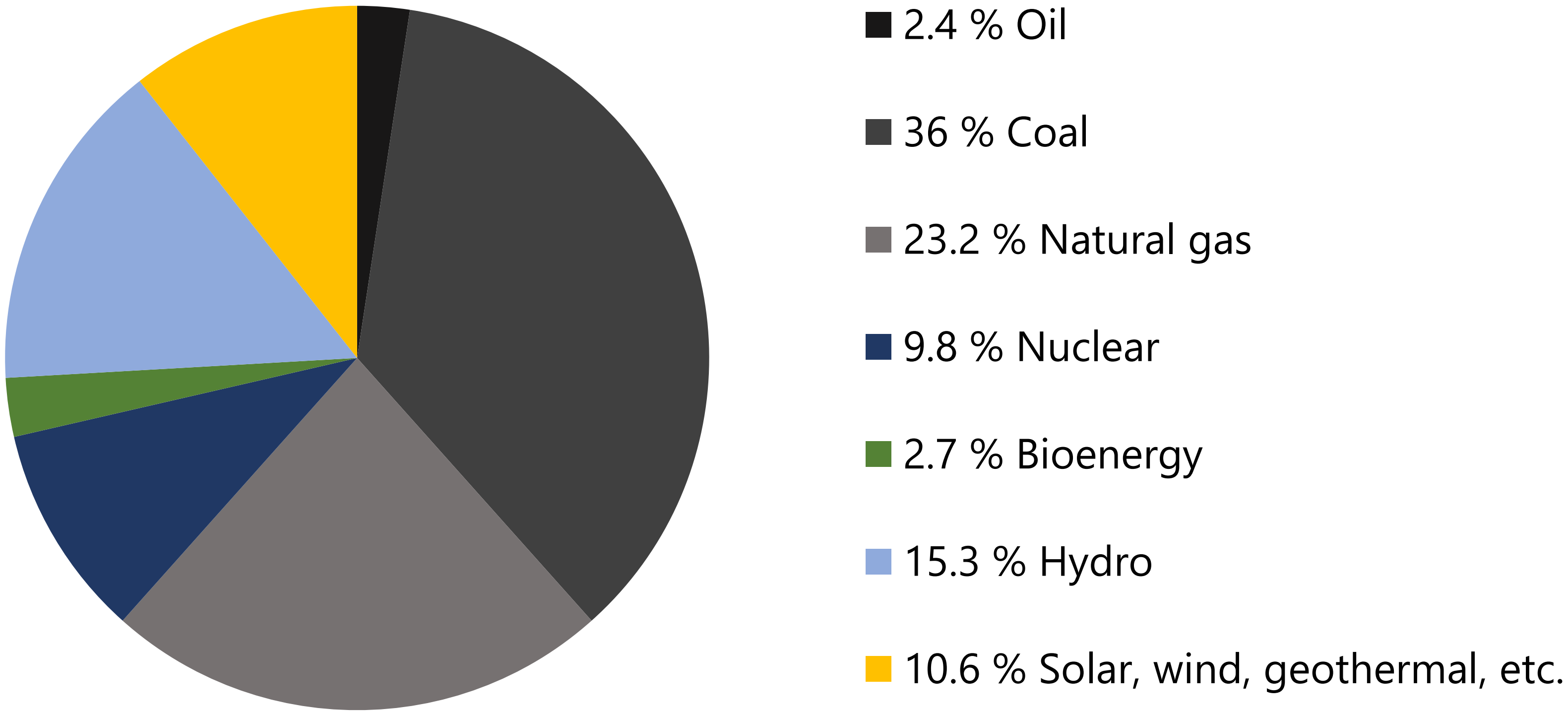


Fig. 19. The marginal product of increasing complexity.

World energy supply (2021) (Source: IEA)



World electricity generation (2021) (Source: IEA)



The problem…

- Economic, technological, territorial, political, ecological issue…

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- Change focus (post-environmentalism)

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- Economic, technological, territorial, political, ecological issue…
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  → Incorrect tax on CO_2 (prices increase).

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- Economic, technological, territorial, political, ecological issue…
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  → Energy poverty.
  → Land use (energy sprawl, reserves).

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  - → Energy poverty.
  - → Land use (energy sprawl, reserves).
  - → Energy education (production, consumption, efficiency).

The problem…

- Energy crisis Europe 2022

The problem…

- Energy crisis Europe 2022:
  → Dependency (natural gas).

The problem…

- Energy crisis Europe 2022:
  → Dependency (natural gas).
  → Net zero (climate crisis).

The problem…

- Energy crisis Europe 2022:
  - → Dependency (natural gas).
  - → Net zero (climate crisis).
  - → Ignore basic energy concepts.

The future…

- Electricity.
- Coal; nuclear fusion?
- Regionally available energy.
- Biomass (wood, pellets) (cheap energy).
- Efficiency.
- Reduce consumption, adapt.

The future…

- Electricity.
- Coal; nuclear fusion?
- Regionally available energy.
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- Efficiency.
- Reduce consumption, adapt.
- Forestry + agriculture: wood, natural fibers, etc.

Transition to a post-hydrocarbon world

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[A matter of decades…]

Transition to a post-hydrocarbon world

[A matter of decades…]

- Planning, legislation, investment.

Transition to a post-hydrocarbon world

[A matter of decades…]

- Planning, legislation, investment.
- Crisis scenarios.

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- R&D+i: high-tech (+$) + low-tech (-$).

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- R&D+i: high-tech (+$) + low-tech (-$).
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Transition to a post-hydrocarbon world

[A matter of decades…]

- Planning, legislation, investment.
- Crisis scenarios.
- R&D+i: high-tech (+$) + low-tech (-$).
- Lifestyles, culture.
- Convincing, viable alternatives (manage territory and entropy).

Conclusion

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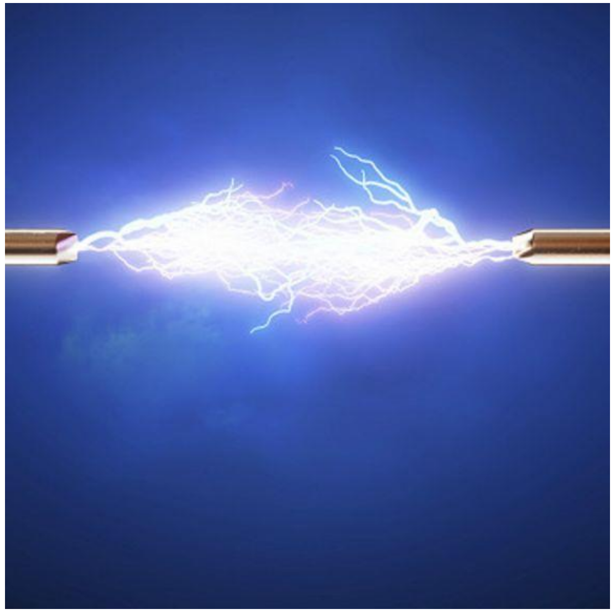
- **Energy** is the problem (not CO_2).



Conclusion

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- There is no climate crisis.

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- Construct the **problem**: concepts, information (no ideology).

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- **Energy** is the problem (not CO_2).
- There is no climate crisis.
- Construct the **problem**: concepts, information (no ideology).
- Create and maintain institutions and projects with a **long-term** vision.

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